Forensic Chemistry Section

Trace Evidence Quality Assurance Policy

1. Scope

This document outlines the quality assurance policies governing trace evidence examinations.

2. Policies

2.1 The Forensic Chemistry Section Supervisor will ensure that laboratory-wide and section quality assurance guidelines are followed. Any deviations will be dealt with in an appropriate manner.

2.2 Laboratories will be cleaned and maintained according to the Quality Assurance Chart which will be kept in each laboratory. Once completed, the chart will be reviewed, signed, and dated by the Forensic Chemistry Section Supervisor or designee. The signed charts will be maintained in Paradigm.

2.3 The Quality Assurance Chart will be initialed and dated upon completion of each task.

2.4 The Forensic Chemistry Section Supervisor or designee will periodically review the Quality Assurance Chart to ensure that cleaning and maintenance are being completed satisfactorily.

2.5 The Forensic Chemistry Section will maintain a Reagent Log for entering the data from all reagents prepared in the laboratory.

2.6 All reagents prepared in the laboratory will be assigned a lot number. This number consists of the date the reagent is made and the examiner's initials, for example:

Lot # 041212TTS

2.7 All reagents prepared in the laboratory will be assigned an expiration date.

2.8 Instrument calibrations will be checked according to the instrument protocols.

2.9 Microscopes will be cleaned and maintained regularly.

2.10 The Forensic Chemistry Section Supervisor will ensure that instruments are operating appropriately. This includes reviewing calibration check data and scheduling general maintenance by the manufacturer.

2.11 Prior to processing trace evidence, the benchtop will be cleaned and lined with clean brown paper.

2.12 The examiner will wear a disposable lab coat and disposable gloves during examination and handling of evidence.

2.13 All utensils must be cleaned prior to use.

2.14 The examiner will be aware of the deleterious effects of the mounting medium on textile fibers and hairs, especially when mounting for a long period of time.

2.15 A minimum amount of mounting media will be used creating a thin, flat, void free preparation.

2.16 Multiple hairs and fibers in a single mount will be well separated. If multiple hairs are mounted on a single slide, the cover slip or slide will be marked to distinguish each hair.

2.17 Questioned samples (unknown items) will be analyzed to determine type (PLM for fibers) and/or organic chemical composition (FTIR for paints and fibers) prior to comparison to known samples. Initial macro and microscopic examinations of known samples may be necessary to determine which unknowns will be further analyzed for comparison purposes.

2.18 Known and questioned sample selections will include the complete range represented in the source.

2.19 Known and questioned samples will be mounted separately.

2.20 If a true representative sample cannot be obtained, the examiner will note that a random sample or selected samples have been tested. The quantity and number of samples used will differ according to:

- Specific techniques and sample preparation
- Sample homogeneity
- Condition of the sample
- Other case dependent analytical conditions and/or concerns

2.21 A minimum amount of sample necessary for analysis will be used.

2.22 All known samples will be prepared the same as the questioned samples.

2.23 Known paint samples will be removed near the apparent area of transfer without disturbing the questioned area.

2.24 Known paint samples will include all layers down to the substrate.

2.25 The examiner will be aware of the deleterious effects of FTIR sample preparation on paint and fiber samples and will adjust examination accordingly.

2.26 Reference samples and spectra will be available for comparison purposes.

2.27 Samples should be focused and centered on the optical axis for microscopic analysis.

2.28 Instrumental measuring sites should be chosen to avoid obvious inhomogeneities occurring within the area being chosen.

2.29 Documentation will be made of all examinations performed and the results of those examinations.

2.30 The examiner will maintain notes sufficient to allow other qualified examiners to follow and understand the procedures used and the examination results.

2.31 The examiners will report the examination results in a manner understandable to the investigators.

2.32 When operating a forensic evidence collection vacuum, good laboratory procedures will be used to ensure the vacuum and filters are cleaned and / or changed appropriately.